

Applicants : Maurice Husson, Christian Jacquemet and Eugene Vorobiev
Appl. No. : 10/520,471
Filed : January 7, 2005

REMARKS

Claims 9-28 are pending in the subject application. By this amendment, Claims 9, 10, 11, 12 and 13 have been amended to more clearly define applicants' invention, while new Claims 29 and 30 have been added. The amendments to Claims 9-13 and the addition of new Claims 29 and 30 are supported by the application as filed and do not introduce new matter. Accordingly, entry of the foregoing claim amendments and new Claims 29 and 30 is respectfully requested.

In view of the remarks which follow, applicants respectfully request reconsideration and withdrawal of the various rejections set forth in the June 10, 2009 Office Action, and passage of the claims to allowance.

35 U.S.C. 102 Rejection

Claims 9-11, 19-21 and 23 were rejected under 35 U.S.C. 102(b) as anticipated by Virtanen (WO 97/38940). This rejection is respectfully traversed.

It is well settled under U.S. Patent Law for an anticipation to occur, "a printed publication must include all the "limitations," i.e., defining features of the claim, as those limitations are arranged in the claim. See, e.g., *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed.Cir.1989). Merely identifying within the prior art all of the various parts of the claimed subject matter is not anticipation." *Eli Lilly and Co. v. Zenith Goldline Pharmaceuticals, Inc.*, 364 F.Supp.2d 820, 898 (S.D.Ind. Apr 14, 2005), affirmed by *Eli Lilly and Co. v. Zenith Goldline Pharmaceuticals, Inc.*, 471 F.3d 1369, 81 U.S.P.Q.2d 1324 (Fed.Cir. 2006) (NO. 05-1396, 05-1429, 05-1430), rehearing and rehearing en banc denied (Mar 29, 2007).

Virtanen describes a method and apparatus for recovering PCC from a causticizing reaction. In the process described in Virtanen, PCC from a reaction mixture of the causticizing reaction is collected on a filter, and then washed with water

Applicants : Maurice Husson, Christian Jacquemet and Eugene Vorobiev
Appl. No. : 10/520,471
Filed : January 7, 2005

containing dissolved carbon dioxide to convert at least part of the hydroxyl compounds in the precipitate into the corresponding carbonate compounds (see Abstract). The details of the separation of PCC from the causticizing process is set forth at page 5, lines 20-32, and the details of the washing of the PCC with water treated with carbon dioxide is set forth at page 6, line 1 to page 7, line 19. Virtanen teaches that the above two steps are required, and that subsequent neutralization of PCC with a mineral acid and dispersion of the PCC are optional but advantageous (page 3, line 32 to page 4, line 4). In this regard, Virtanen teaches that it is especially preferable to neutralize the PCC with a mineral acid, followed by dispersion of the PCC and adjustment of the solids content (see page 4, lines 9-12). Virtanen does not disclose two separate stages of filtration, wherein in the first filtration stage, a pre-layer of mineral matter is formed on a filtration membrane in the absence of a dispersant agent, and in the second filtration stage, which is operated continuous to the first filtration stage, the pre-layer of mineral matter from the first filtration stage is treated on the filtration membrane with a second aqueous suspension containing a dispersant agent to obtain a filtrate and a concentrated cake. Rather, Virtanen requires at the very least washing the PCC from the first filtration with water treated with carbon dioxide before any additional processing steps are preformed. Therefore, Virtanen simply does not teach the addition of a second filtration stage that is operated continuous with the first filtration.

In support of the rejection, the Examiner refers to Claims 1, 7 and 8 of Virtanen. Consistent with the specification, Claim 1 of Virtanen requires two steps. In the first step, a PCC is separated from a reaction mixture by filtration. In the second step, the PCC collected onto a filter is washed with water containing carbon dioxide to convert at least a portion of the hydroxyl compounds in the precipitate into corresponding carbonate compounds. Again, since Virtanen requires at the very least washing the PCC from the first filtration with water treated with carbon dioxide before

Applicants : Maurice Husson, Christian Jacquemet and Eugene Vorobiev
Appl. No. : 10/520,471
Filed : January 7, 2005

any additional processing steps are preformed, Virtanen does not teach the addition of a second filtration stage that is operated continuous with the first filtration.

For these reasons, the claimed invention is not anticipated by Virtanen, and reconsideration and withdrawal of this rejection is respectfully requested.

35 U.S.C. 103 Rejection

Claims 9-28 also were rejected under 35 U.S.C. 103 as unpatentable over Bleakley, et al. (U.S. Patent No. 5,833,747) in view of Izaki, et al. (U.S. Patent No. 3,970,639) and Anderson et al. (U.S. Patent No. 4,962,279). This rejection is respectfully traversed.

In accordance with U.S. Patent Law, the mere identification in the prior art of each component of a claimed invention does not show that the combination as a whole lacks the necessary attributes for patentability, i.e., is obvious. *Eli Lilly & Co. v. Zenith Goldline Pharms., Inc.*, 471 F.3d 1369, 1377 (Fed. Cir. 2006). Rather, to establish a prima facie case of obviousness based on a combination of elements in the prior art, the law requires a motivation to select the references and to combine them in the particular claimed manner to reach the claimed invention. *Id.* In order to establish obviousness, it is improper to attempt to retrace the path of the inventor with hindsight, discount the number and complexity of the alternatives, and conclude that the invention is obvious. *Ortho-McNeil Pharmaceutical, Inc. v. Mylan Laboratories*, 520 F.3d 1358, 1364 (Fed. Cir. 2008).

The claimed invention is directed to a process in which two separate stages of filtration are performed, wherein in the first filtration stage, a pre-layer of mineral matter is formed on a filtration membrane in the absence of a dispersant agent, and in the second filtration state, which is operated continuous to the first filtration stage, the pre-layer of mineral matter from the first filtration stage is treated on the filtration

Applicants : Maurice Husson, Christian Jacquemet and Eugene Vorobiev
Appl. No. : 10/520,471
Filed : January 7, 2005

membrane with a second aqueous suspension containing a dispersant agent to obtain a filtrate and a concentrated cake. While Bleakley discloses partially dewatering a PCC-containing suspension (Col. 7, lines 46-49), Bleakley does not teach (1) a second filtration stage in which the pre-layer of mineral matter formed from the first filtration stage is treated on the filtration membrane with a second aqueous suspension containing a dispersant agent, and (2) continuous operation between the first and second filtration stages, as in the claimed process. Rather, in Bleakley, the pH of the dewatered calcium carbonate is first adjusted (see, Col. 7, lines 51-52) before the dispersion step. In addition, the dispersion step of Bleakley does not involve filtration whatsoever. Rather, Bleakley teaches redispersion of the partially dewatered calcium carbonate in water containing the dispersing agent in a high shear mixer to give the fluid suspension containing the calcium carbonate. This is different from the claimed process in which a second filtration stage is performed by treating the pre-layer of mineral matter from the first filtration stage on the filtration membrane with a second aqueous suspension containing a dispersant agent to obtain a filtrate and a concentrated cake. Therefore, using the teachings of Bleakley as a guide, the skilled artisan would chose to combine the dispersion agent and the calcium carbonate in a fluid suspension in a high speed mixer, and not to perform a second filtration stage continuous to a first filtration stage, in which the pre-layer of mineral matter formed from the first filtration stage is treated on the filtration membrane with a second aqueous suspension containing a dispersant agent.

The Examiner has cited Anderson, which the Examiner stated teaches subjecting filter cakes to second filtrations, in support of the Examiner's position that the claimed invention is obvious. In this regard, the Examiner stated that one skilled in the art would have been motivated to employ a second filtration operated continuous to the first filtration stage, since 1) Anderson et al. teach that a second filtration can remove undesirable salts, and 2) selection of any order of performing process steps is prima facie

Applicants : Maurice Husson, Christian Jacquemet and Eugene Vorobiev
Appl. No. : 10/520,471
Filed : January 7, 2005

obvious in the absence of unexpected results. Applicants respectfully disagree. Anderson is concerned with the production of calcined and hydrous kaolins in which a kiln is integrated with a dust filter and a spray dryer to collect dust laden kiln gases to recover entrained kaolin (Col. 1, lines 17-27). Anderson is not concerned with the preparation of a concentrated cake using two stages of filtration as claimed. In the complicated process described in Cols. 5-8, Anderson mentions that clay is filtered before it is fed to a spray dryer in order to reduce the load on the dryer (Co. 7, lines 19-22). Anderson also suggests that if excessive amounts of soluble salts are included in clay, then the clay may be diluted and subjected to a second filtration before being fed to a spray dryer (Col. 7, lines 22-27). However, Anderson does not teach or suggest the inclusion of a dispersant in the second filtration stage. Rather, the second filtration in Anderson is to remove soluble salts and not to introduce a dispersant to the mineral matter. Therefore, the addition of Anderson to Bleakley does not render the claimed invention obvious.

Since Izaki was cited merely to show that the pigment aluminum hydroxide can be included in paper coating compositions, the addition of Izaki to Bleakley and Anderson does not render the claimed invention obvious.

As discussed on page 1 of the present application, to accomplish the various industrial uses of mineral suspensions, it is necessary to produce suspensions of mineral loads with excellent rheology, i.e. with a low viscosity during the period of storage to facilitate manipulating and application, and as high as possible a mineral content, in order to reduce the quantity of water handled (page 1, lines 18-22). During production of the aqueous mineral suspensions, some processes lead to weakly concentrated aqueous suspensions that must be concentrated to offer them to the end user (page 1, lines 24-30). Filtration is one of the means known to concentrate suspensions; however, filtrations have led to cakes which are so compact that it is was

Applicants : Maurice Husson, Christian Jacquemet and Eugene Vorobiev
Appl. No. : 10/520,471
Filed : January 7, 2005

necessary to add the dispersant after the filtration stage and to use high mechanical energy to return the cakes to suspension (page 1, lines 32-36). This is, in fact, what Bleakley teaches (i.e., redispersion of the partially dewatered calcium carbonate in water containing the dispersing agent in a high shear mixer to give the fluid suspension containing the calcium carbonate). Other techniques are also described in the art, and include, for example, (1) filtering suspensions without any dispersant, which has the disadvantage that the produced cakes are difficult to disperse (page 2, lines 9-13); and (2) the use of a dispersant before filtration, which has the disadvantages that (i) large quantities of dispersant are required for filtration, resulting in large quantities of the dispersant in the filtrate, generating environmental and ecological problems, (ii) the requirement for particular dispersive facilities, and (iii) the use of a pressure of over 17 bars for filtration (page 2, lines 20-43).

The present invention has resolved the disadvantages associated with the prior art. In this regard, as mentioned on page 1, line 44 to page 2, line 7, by employing two separate and continuous stages of filtration of the present invention, where a pre-layer of mineral matter is formed on the filtration membrane in the absence of a filtration stage, and in the second filtration stage, the pre-layer of mineral matter from the first filtration stage is treated on the filtration membrane with a second aqueous suspension containing a dispersant agent to obtain a filtrate and a concentrated cake, it is possible to obtain, without any obligation to add a dispersant agent after the concentration stage or to use mechanical energy to return the mineral matter to suspension, an aqueous suspension of fluid mineral matter that can be directly used following the filtration stage.

In view of this discussion, it should be clear that applicants' claimed process, and the advantages associated therewith, are not taught or suggested by the cited art.

Applicants : Maurice Husson, Christian Jacquemet and Eugene Vorobiev
Appl. No. : 10/520,471
Filed : January 7, 2005

For these reasons, applicants maintain that the claimed invention is patentable over Bleakley in view of Izaki and Anderson. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Additional Claim Fee

At the time of filing, a filing fee was paid to cover twenty (20) claims. By this amendment, new Claims 29 and 30 have been added requiring an additional claim fee of \$104 (2 x \$52). The enclosed check covers the \$104 additional claim fee.

Supplemental Information Disclosure Statement

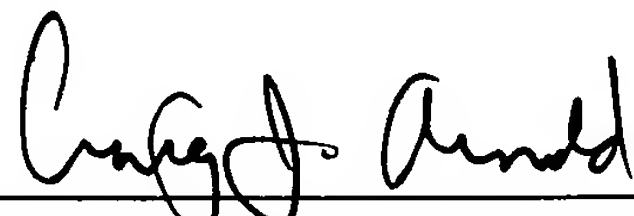
In accordance with the duty of disclosure under 37 C.F.R. §1.56, applicants would like to direct the Examiner's attention to the attached form PTO/SB/08B (1 page). Copies of the non-U.S. patent items listed on form PTO/SB/08A and B are also included.

No fee, other than the \$1110 three month extension of time, the \$104 additional claim fee, and the \$810 RCE fee, is deemed necessary in connection with the filing of this response. If any fee is required to preserve the pendency of the subject application, authorization is hereby given to charge the amount of any such fee to Deposit Account No. 01-1785.

Respectfully submitted,

AMSTER, ROTHSTEIN & EBENSTEIN LLP
Attorneys for Applicants
90 Park Avenue
New York, NY 10016
(212) 336-8000

Dated: December 8, 2009
New York, New York

By: 
Craig J. Arnold, Reg. No. 34,287